

**REMARKS**

By the present amendment, claim 1 has been amended to replace the recitations “said first authentication element of the first ply being substantially absent from the second ply” and “the second authentication element of the second ply is substantially absent from the first ply by the recitations “the first authentication element is of a first type and the second authentication element is of a second type different from the first type” and “(1) the first ply does not include any authentication element of the second type, and (2) the second ply does not include any authentication element of the first type.”

Further, claim 25 has been amended to replace the recitations “said first authentication element of the first ply being substantially absent from the other ply” and “reinforcing element [of the second ply] substantially absent from the first ply” by the recitations “ (1) the first ply does not include any reinforcing fibers different from the fibers of the fibrous structure of the first ply and such that the paper would have a mechanical strength higher than a mechanical strength of a paper having identical weight in  $\text{g/m}^2$  and identical composition except without the reinforcing element, and (2) the second ply does not include any watermark.”

Examiner’s comment in the Advisory Action regarding interpretation of claim language

With respect to the claim language “absent from the other ply,” it is alleged in the Advisory Action that this feature is inherent because, if an element is present in one ply, it is necessarily absent from the other ply.

The Examiner's position is respectfully traversed, because the alleged interpretation would remove any meaning to the expression "absent from the other ply." Rather, the person of the art would interpret that fibers of the same type are absent from the other ply.

In order to advance prosecution, claims I and 25 have been amended to present an alternative recitation of this feature that avoids the language "absent from the other ply." It is submitted that this recitation is a mere reformulation without scope change.

Examiner's comments in the Advisory Action regarding whether the person of the art would use a same paper stock

In the response filed February 26, 2010, it was explained that the person of the art would use the same paper stock for the two plies of US 5,565,276 to Murakami et al. ("Murakami").

In the Advisory Action, it is alleged that:

1. no evidence has been submitted to establish that using a same paper stock is conventional,
2. US 3,880,706 to Williams ("Williams") at Figs. 2 and 4 show separate pulp tank vats without shared pulp circuit, and
3. The person of the art "would reinforce the layers he/she would see to benefit from such an [sic] reinforcement."

As to the conventional practice regarding providing pulp for paper machines, it is submitted that a reason for producing a multi-ply paper is that each forming element (headboxes for a Fourdrinier paper machine or vats for a Mold former paper machine) produces a paper ply whose weight is limited. Consequently, it is conventional to combine several forming elements

in order to produce a heavier paper sheet. Accordingly, the same paper stock (= pulp) is generally used, since the aim is to obtain a homogeneous and heavy paper sheet.

Reference is made to the excerpt from Paper machine crew operating manual (A book for paper machine operators), Lockwood Trade Journal Co., Revised first edition, 1963, pages 60 and 69, which is submitted with this paper. As explained in this excerpt, secondary headboxes are used in order to obtain a sufficient weight ( $\text{g/m}^2$ ) by stacking and binding several paper plies (wet assembling with formation of hydrogen bonds).

Reference is also made to the Figure From Wood to Paper, available at [http://www.energysolutionscenter.org/GasIRPaper/Learn%20About/Paper\\_Manufacture.htm](http://www.energysolutionscenter.org/GasIRPaper/Learn%20About/Paper_Manufacture.htm) (last visited April 26, 2010), which is submitted with this paper. The Figure shows a paper machine comprising several cylinder moulds fed with the same paper stock / pulp. On the left, a cylinder paper machine with at least 5 cylinder molds (multi-ply) is shown and on the right, there is a single Fourdrinier paper machine (one-ply). The Figure is of course a schematic view but it is clear that the at least 5 vats of the paper machines are supplied with the same paper stock. Thus, the document illustrates that pulp production precedes paper production, and paper production generally begins when the “wet end additives” are added to the pulp.

Turning to the cited references, first, Murakami refers to “the combination of a tanmo machine and a cylinder machine or the combination of the cylinder machines” (col. 6, lines 64-65) but Murakami does not provide any guidance as to how the machines are supplied with pulp.

Further, regarding US 3,880,706 Figs 2 and 4, it is submitted that this reference does not show the pulp circuit, which is upstream of the pulp vats shown in these Figures.

Accordingly, it is submitted that the person of the art would refer to conventional practice in order to feed the pulp vats (= cylinder molds). This would result in supplying the paper machines with a shared pulp circuit, as explained above.

Additional reason for non-obviousness (claim 1)

In addition to the explanations in the last response, with respect to claim 1, it is submitted that Murakami invites the person of the art to provide a paper having an “authentication” side undisturbed by printing and a “printing” side undisturbed by authentication particles, as shown in Figs. 4-5. Further, Murakami is not concerned about interferences between various authentication elements. Murakami’s teachings regarding the position of the authentication elements is independent from whether there is only one layer (Fig. 4) or two layers (Fig. 5). Thus, it is submitted that in accordance with the teachings of Murakami, the person of the art would have provided all authentication elements of col. 7, lines 10-14 in the layer 10, so as to keep the “printing side” of layer 20 undisturbed.

Additional reason for non-obviousness (claim 25)

In addition to the explanations in the last response and hereinabove, with respect to present claim 25, it is submitted that another reason why, in order to obtain a stronger multiply (two or more plies) paper sheet, the person of the art would conventionally have added reinforcing fibers in all the plies is that the paper sheet then would be expected to have a better mechanical resistance, without being weakened by an heterogeneous structure.

Applicants urge that it had never been noticed - prior to the present invention - that reinforcement elements (e.g., fibers) may be prejudicial to the quality (e.g., definition) a

watermark. Therefore, there would have been no reason or incentive to depart from the simple implementation of a conventional process of supplying a same pulp with reinforcing fibers for all plies, especially in view of the expected stronger mechanical resistance.

In support of this explanation, it is submitted that many descriptions of watermarked papers containing synthetic fibers can be found without any mention of a detrimental effect on the quality of the watermark, such as, for example, in the following references:

- US20040239097A1 at page 6, paragraph 0092 describes combining a watermark with polymer fibers.
- US20060240226A1 at page 2, paragraph 0018 describes combining a watermark with “cellulose fibers, cotton fibers, synthetic fibers, such as polyolefin or polyester fibers.”
- US20060127649A1 at page 5, paragraph 0087 states: “The paper layer is normally produced of cotton fibers or other annual fibers. For some applications, however, it can also be expedient to replace part of these natural fibers by synthetic fibers, in particular polyamide fibers. But pure synthetic fiber papers are also conceivable. During production of the paper layer, single security elements are already embedded in the paper, such as a portrait watermark 2 and a windowed security thread 3.”
- US20010045593A1 at page 3, paragraph 32 states: “In the context of the application, paper is understood to mean paper which is made from natural or synthetic fibers, as well as 'paper' which can nowadays be produced from plastic film [...] The security paper may further contain other security features, such as watermarks, security threads, hologram and the like.”

In summary, prior to the present invention, the person of the art had no incentive to avoid using reinforcing fibers together with a watermark, as the prior art did not recognize any loss of clarity of the watermark due to the reinforcement fibers.

Reconsideration and withdrawal of the rejections in view of the explanations in the response filed February 26, 2010, and the explanations herein, is respectfully requested.

Conclusion

In conclusion, the invention as presently claimed is patentable. It is believed that the claims are in allowable condition and a notice to that effect is earnestly requested.

If there is, in the Examiner's opinion, any outstanding issue and such issue may be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

If this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of the response period. Please charge the fee for such extension and any other fees which may be required to Deposit Account No. 50-2866.

Respectfully submitted,

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